

GROUP 36

PARKING BRAKES

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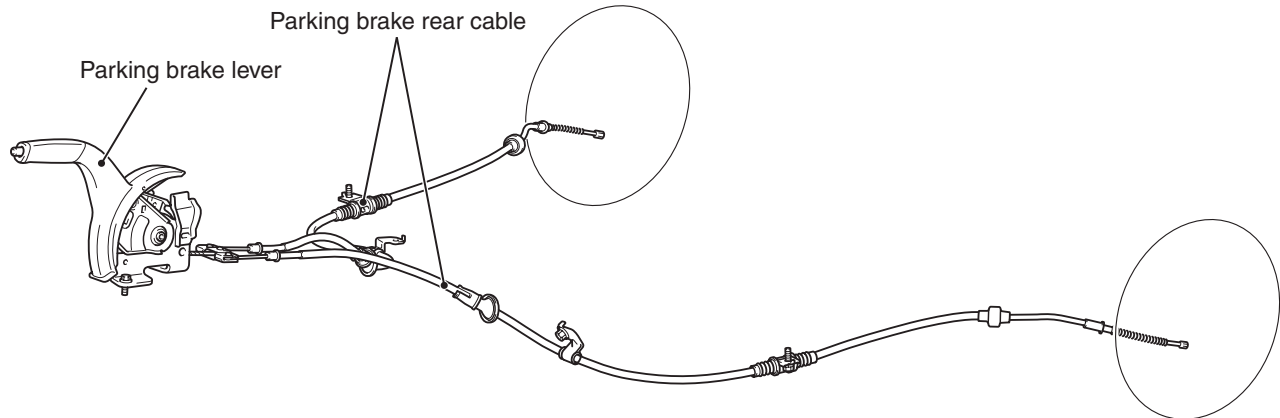
GENERAL INFORMATION

M1361000100775

The mechanical rear-wheel acting type parking brake is adopted, and a parking brake lever is used for that operation.

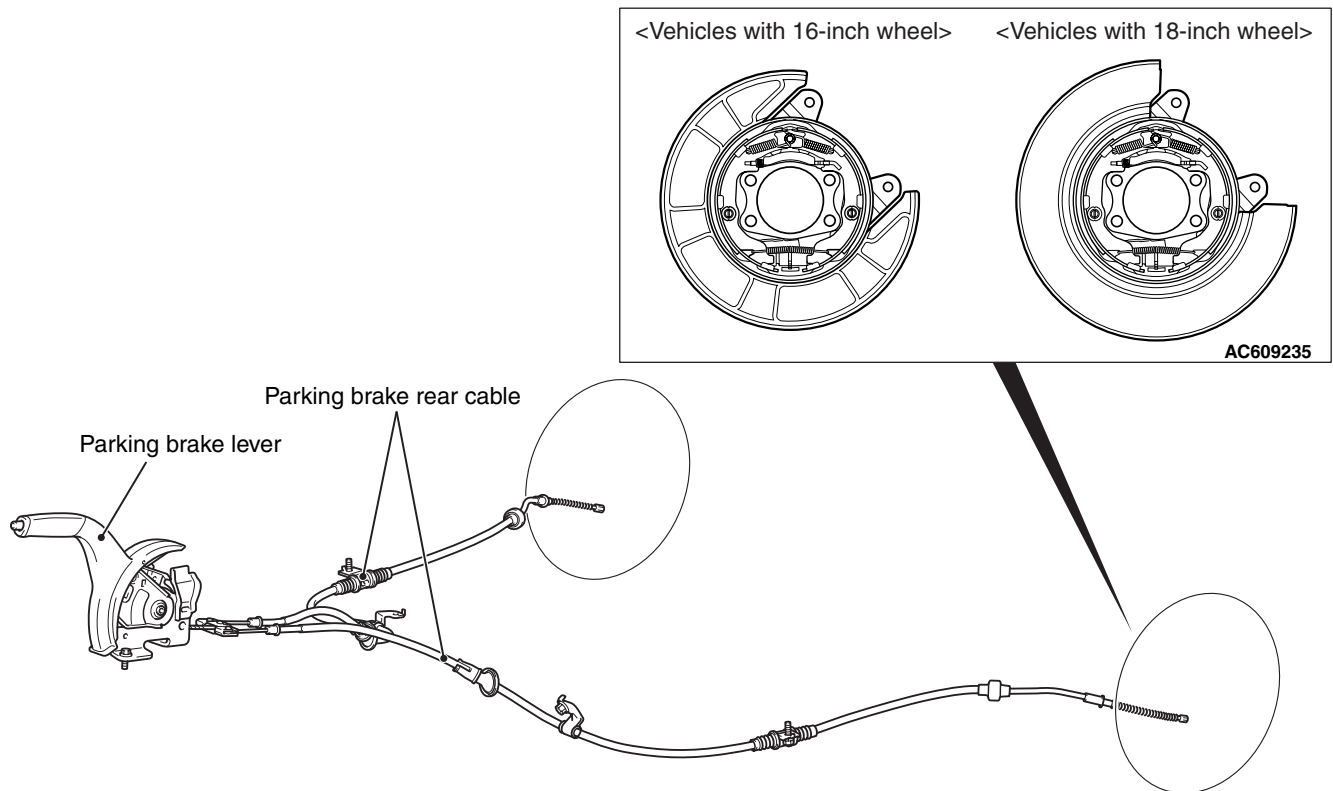
CONSTRUCTION DIAGRAM

<Vehicles with rear drum brake>



AC609233AC

<Vehicles with rear disc brake>



AC609234AB

SERVICE SPECIFICATIONS

M1361000300917

Item	Standard value	Limit
Parking brake lever stroke [Control force approx. 196 N (44 pounds)]	3 to 5 notches	—
Brake lining thickness <Vehicles with rear disc brake> mm (in)	2.8 (0.11)	1.0 (0.04)
Brake drum inside diameter <Vehicles with rear disc brake> mm (in)	168.0 (6.61)	169.0 (6.65)

GREASE

M1361000400497

Item	Brand name	Capacity
Backing plate	Chuo Yuka AKB 100 or equivalent	Adequate
Shoe and lining assembly		
Adjuster		

PARKING BRAKE DIAGNOSIS

INTRODUCTION

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If the parking brake is faulty, parking brake effort will become insufficient. The cause may be a malfunction of parking brake parts or the parking brake pedal being out of adjustment.

TROUBLESHOOTING STRATEGY

M1361003800331

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a parking brakes fault.

1. Gather Information from the customer.

2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

SYMPTOM CHART

M1361004100391

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Brake drag	—	Refer to GROUP 35A, Basic Brake System Diagnosis –Symptom Chart P.35A-12 .
Insufficient parking brake function	1	P.36-4
When the parking brake lever is pulled, the brake warning light does not illuminate.	2	P.36-5
When the parking brake lever is released, the brake warning light does not turn off.	3	P.36-7

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Insufficient Parking Brake Function

DIAGNOSIS

STEP 1. Check the excessive parking brake lever stroke.

Refer to [P.36-10](#).

Q: Is the parking brake lever stroke adjusted properly?

YES : Go to Step 2.

NO : Adjust the parking brake lever stroke or check the parking brake cable routing. Then go to Step 5.

STEP 2. Check the parking brake cable for sticking.

Q: Is the parking brake cable stuck?

YES : Replace the cable. Then go to Step 5.

NO : Go to Step 3.

STEP 3. Check the brake lining and brake drum for wear.

Refer to [P.36-17](#).

Q: Is the brake lining thickness or brake drum inside diameter out of specification?

YES : Replace the rear brake shoe assembly or rear brake disc (Refer to [P.36-15](#)). Then go to Step 5.

NO : Go to Step 4.

STEP 4. Check for oil, water, etc., on the lining contact surfaces.

Q: Is oil, water, etc., on the lining contact surface?

YES : Replace the part and determine and repair source/cause of foreign material. Then go to Step 5.

NO : Carry out the parking brake lining seating procedure (Refer to [P.36-11](#)) and then go to Step 5.

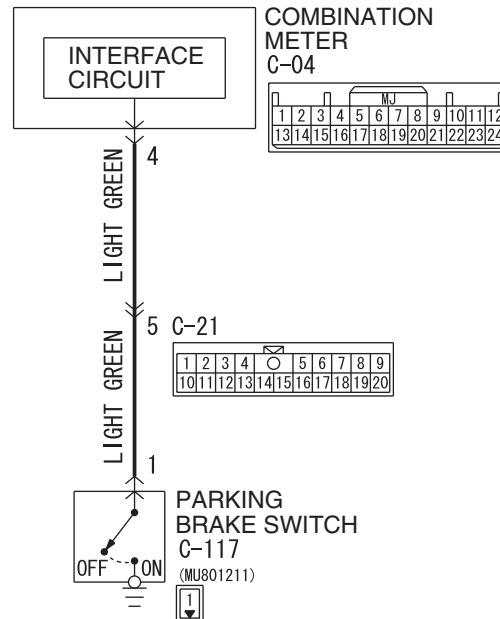
STEP 5. Retest the system.

Q: Is the malfunction eliminated?

YES : The procedure is complete.

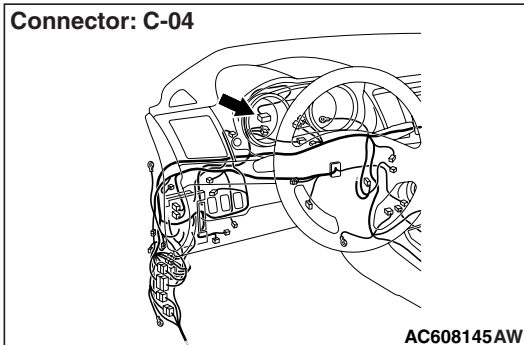
NO : Return to Step 1.

INSPECTION PROCEDURE 2: When the Parking Brake Lever is Pulled, the Brake Warning Light does not Illuminate.



W8G36M000A

Connector: C-04



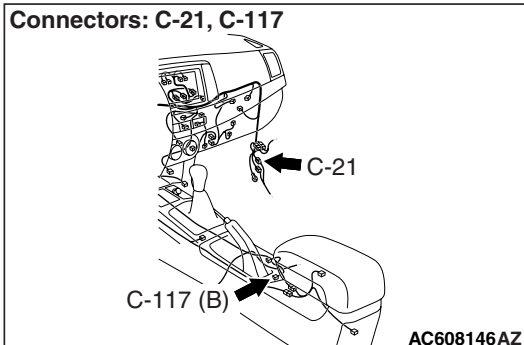
TECHNICAL DESCRIPTION (COMMENT)

The parking brake switch turns on and off by operating the parking brake lever, and the brake warning light illuminates and goes out, indicating the operating status of parking brake to the driver.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CASE:)

- Damaged wiring harness or connector
- Parking brake switch defective
- Combination meter defective

Connectors: C-21, C-117



DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
- MB991824: Vehicle Communication Interface (V.C.I.)

- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, check combination meter actuator test.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Turn the parking brake switch and brake fluid level switch to "OFF" position.
- (4) Set scan tool MB991958 to the actuator test mode.
 - Item 10: Indicator lamp 4: ON
 - The brake warning light illuminates.
 - Item 10: Indicator lamp 4: OFF
 - The brake warning light goes out.
- (5) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the combination meter (Refer to GROUP 54A, Combination meter assembly [P.54A-90](#)).

STEP 2. Check the parking brake switch.

Refer to [P.36-11](#).

Q: Is the parking brake switch normal?

YES : Go to Step 3.

NO : Replace the parking brake switch. Then go to Step 7.

STEP 3. Check parking brake switch connector C-117, intermediate connector C-21 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 4.

NO : Repair or replace the faulty connector (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Then go to Step 7.

STEP 4. Check the harness wire parking brake switch connector C-117 terminal 1 and combination meter connector C-04 terminal 4 for damage.

Q: Are the harness wires in good condition?

YES : Go to Step 5.

NO : Repair the damaged harness wire. Then go to Step 7.

STEP 5. Check the parking brake switch ground for damage.

Q: Is the parking brake switch ground in good condition?

YES : Go to Step 6.

NO : Repair the ground or damaged harness wire. Then go to Step 7.

STEP 6. Retest the system.

Q: Does the brake warning light illuminate when the parking brake lever is pull?

YES : It can be assumed that this malfunction is intermittent (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the combination meter (Refer to GROUP 54A, Combination meter assembly [P.54A-90](#)).

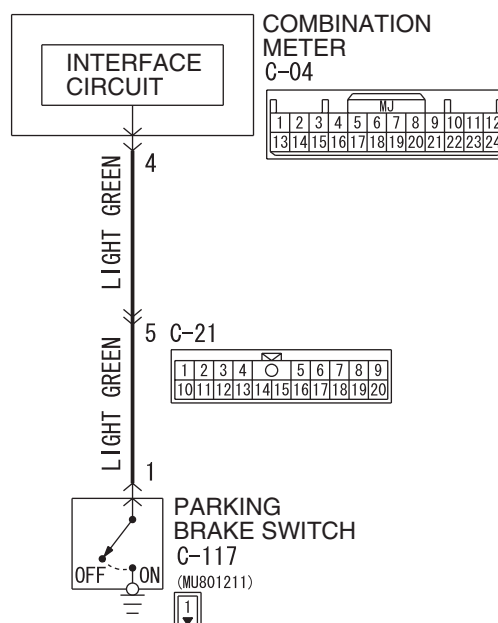
STEP 7. Retest the system.

Q: Does the brake warning light illuminate when the parking brake lever is pulled?

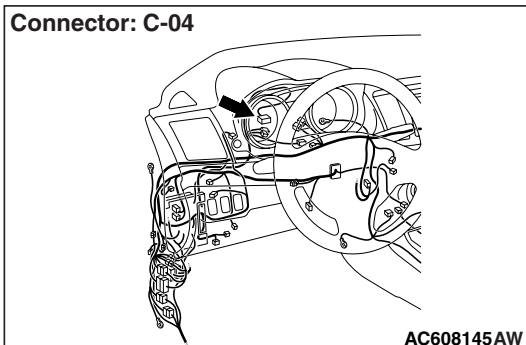
YES : The procedure is complete.

NO : Return to Step 1.

INSPECTION PROCEDURE 3: When the Parking Brake Lever is Released, the Brake Warning Light does not Turn Off.

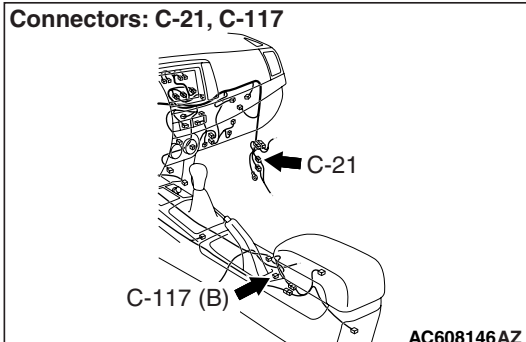


Connector: C-04



AC608145AW

Connectors: C-21, C-117



AC608146AZ

TECHNICAL DESCRIPTION (COMMENT)

The parking brake switch turns on and off by operating the parking brake lever, and the brake warning light illuminates and goes out, indicating the operating status of parking brake to a driver.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CASE:)

- Damaged wiring harness or connector
- Parking brake switch defective
- Combination meter defective

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, check combination meter actuator test.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Turn the parking brake switch and brake fluid level switch to "OFF" position.
- (4) Set scan tool MB991958 to the actuator test mode.
 - Item 10: Indicator lamp 4: ON
 - The brake warning light illuminates.
 - Item 10: Indicator lamp 4: OFF
 - The brake warning light goes out.
- (5) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the combination meter (Refer to GROUP 54A, Combination meter assembly [P.54A-90](#)).

STEP 2. Check the parking brake switch.

Refer to [P.36-11](#).

Q: Is the parking brake switch normal?

YES : Go to Step 3.

NO : Replace the parking brake switch. Then go to Step 7.

STEP 3. Check parking brake switch connector C-117, intermediate connector C-21 and combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 4.

NO : Repair or replace the faulty connector (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Then go to Step 7.

STEP 4. Check the harness wire parking brake switch connector C-117 terminal 1 and combination meter connector C-04 terminal 4 for damage.

Q: Are the harness wires in good condition?

YES : Go to Step 5.

NO : Repair the damaged harness wire. Then go to Step 7.

STEP 5. Check the parking brake switch ground for damage.

Q: Is the parking brake switch ground in good condition?

YES : Go to Step 6.

NO : Repair the ground or damaged harness wire. Then go to Step 7.

STEP 6. Retest the system.

Q: Does the brake warning light illuminate when the parking brake lever is pulled?

YES : It can be assumed that this malfunction is intermittent (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Replace the combination meter (Refer to GROUP 54A, Combination meter assembly [P.54A-90](#)).

STEP 7. Retest the system.

Q: Does the brake warning light illuminate when the parking brake lever is pulled?

YES : The procedure is complete.

NO : Return to Step 1.

ON-VEHICLE SERVICE

PARKING BRAKE LEVER STROKE CHECK AND ADJUSTMENT

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STROKE CHECK [CONTROL FORCE APPROX. 196 N (44 pounds)]

Standard value: 3 to 5 notches

STROKE ADJUSTMENT <Vehicles with rear drum brake>

If the parking brake lever stroke is out of the standard range, adjust as described below:

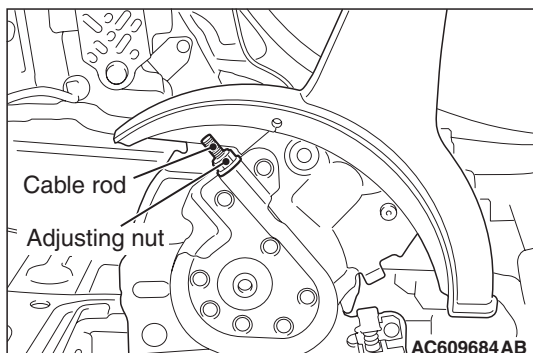
1. Remove the floor console assembly (Refer to GROUP 52A – Floor Console Assembly [P.52A-8](#)).
2. Loosen the adjusting nut to the end of the cable rod in order to allow slack in the cables.
3. Depress the brake pedal repeatedly until the stroke no longer changes.

NOTE: If the pedal stroke stops changing, the auto-adjustment mechanism is functioning normally, and the clearance between the shoe and drum is correct.

⚠ CAUTION

Be careful that the parking brake lever notch number should be within the standard range. If the notch number is too low, rear brake dragging can be caused.

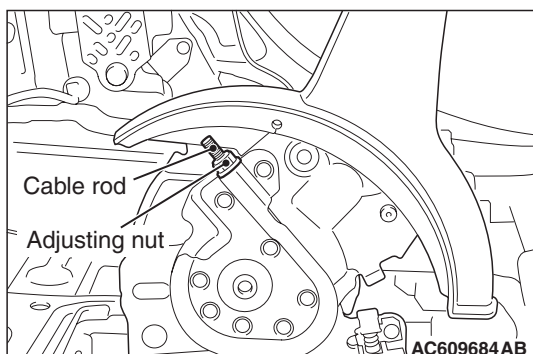
4. Adjust the parking brake lever stroke to the standard value by turning the adjusting nut. After adjustment, check that there is no free play between the adjusting nut and the parking brake lever.
5. After the parking brake lever stroke is adjusted, raise the rear of the vehicle. Release the parking brake, and turn the rear wheels to confirm that the rear brakes are not dragging.

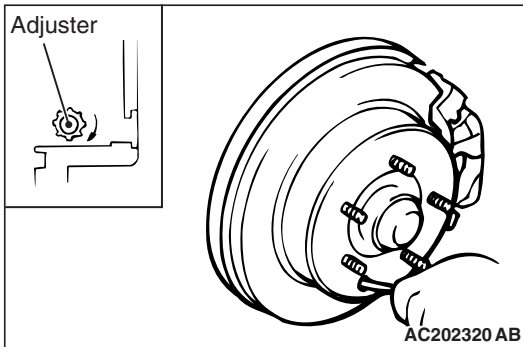


STROKE ADJUSTMENT <Vehicles with rear disc brake>

If the parking brake lever stroke is out of the standard range, adjust as described below:

1. Remove the floor console assembly (Refer to GROUP 52A – Floor Console Assembly [P.52A-8](#)).
2. Loosen the adjusting nut to the end of the cable rod in order to allow slack in the cables.





3. Remove the rear brake disc adjusting hole plug. Then insert a flat-tipped screwdriver to turn the adjuster to the arrow direction (to expand the shoe) until the parking brake shoe makes contact and the disc can no longer be turned. Back off the adjuster to the opposite direction by five notches.

⚠ CAUTION

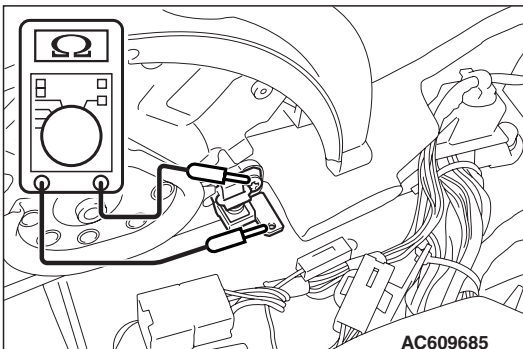
Be careful that the parking brake lever notch number should be within the standard range. If the notch number is too low, rear brake dragging can be caused.

4. Adjust the parking brake lever stroke to the standard value by turning the adjusting nut. After adjustment, check that there is no free play between the adjusting nut and the parking brake lever.
5. After the parking brake lever stroke is adjusted, raise the rear of the vehicle. Release the parking brake, and turn the rear wheels to confirm that the rear brakes are not dragging.

PARKING BRAKE SWITCH CHECK

M1361003301027

1. Remove the floor console assembly (Refer to GROUP 52A – Floor Console P.52A-8).
2. Check the continuity between the parking brake switch terminal and the switch mounting bolt.



When the parking brake lever is pulled up:	Continuity exists
When the parking brake lever is released:	No continuity

PARKING BRAKE LINING SEATING PROCEDURE

M1361005100071

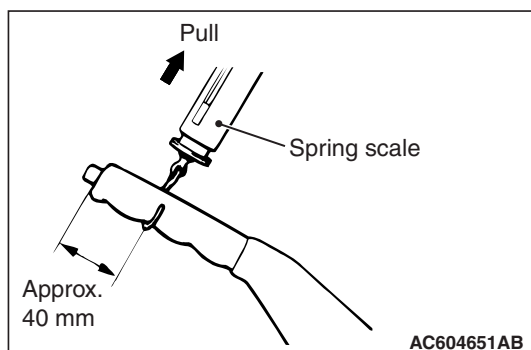
⚠ CAUTION

Perform lining seating in a place with good visibility, and pay special attention to safety.

Perform lining seating by the following procedure when replacing the parking brake shoe assemblies or the rear brake discs, or when brake performance is insufficient.

1. Adjust the parking brake lever stroke to the standard value.

Standard value [Operation force: Approx. 196 N (44 pounds)] : 3 to 5 notches



2. Hook a spring scale onto the center of the parking brake lever grip and pull it with a force of 98 –147 N (22 –33 pounds) in a direction perpendicular to the handle.
3. Drive the vehicle at a constant speed of 35 - 50 km/h (22 - 31 mph) for 100 metres (328 feet).
4. Release the parking brake and let the brakes cool for five to ten minutes.
5. Repeat the procedure in steps 2 to 4 four or five times.

PARKING BRAKE LEVER

REMOVAL AND INSTALLATION

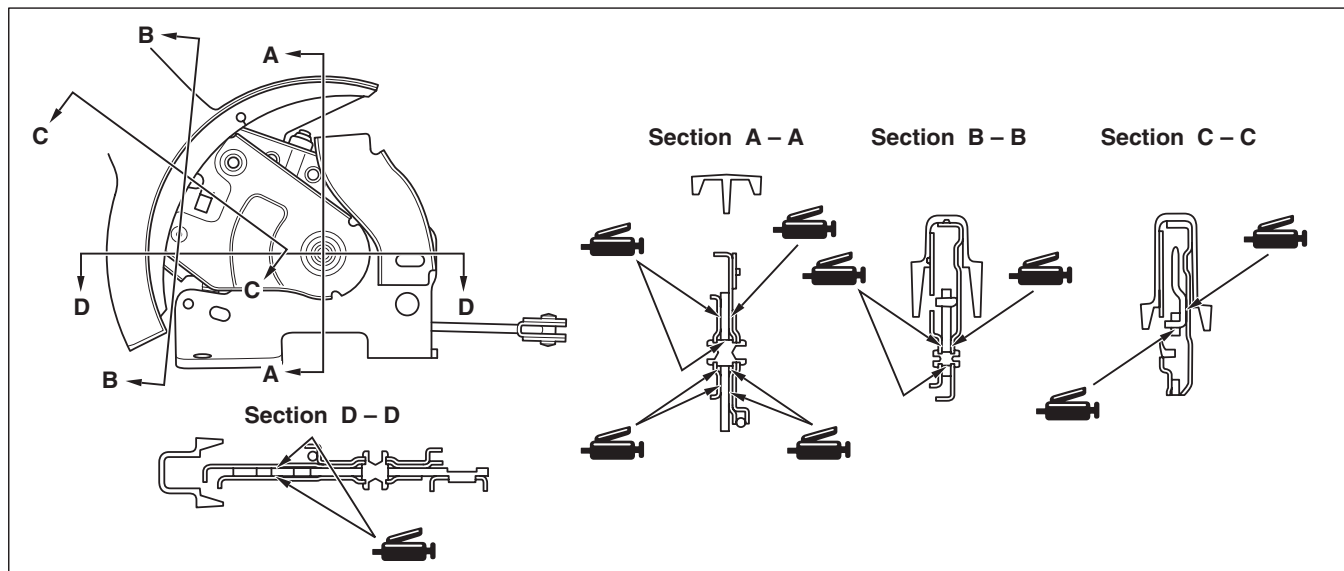
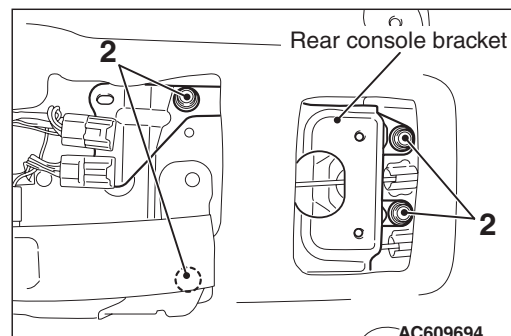
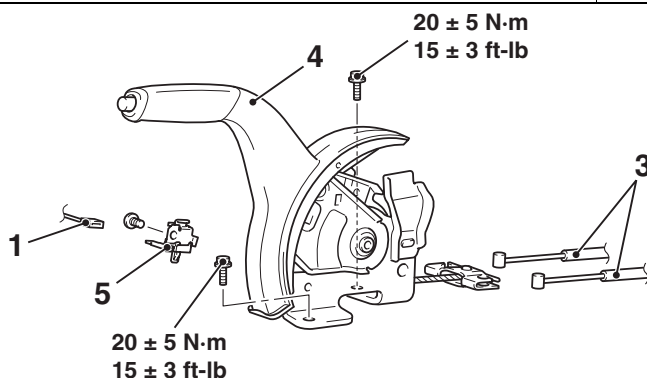
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Pre-removal operation

Floor Console Assembly Removal (Refer to GROUP 52A – Floor Console Assembly [P.52A-8](#)).

Post-installation operation

- Parking Brake Lever Stroke Check (Refer to [P.36-10](#)).
- Floor Console Assembly Installation (Refer to GROUP 52A –Floor Console Assembly [P.52A-8](#)).



Removal steps

1. Parking brake switch connector <<A>>
 - Release the parking brake lever.
 - Loosen the adjusting nut.
2. Rear console bracket mounting bolt

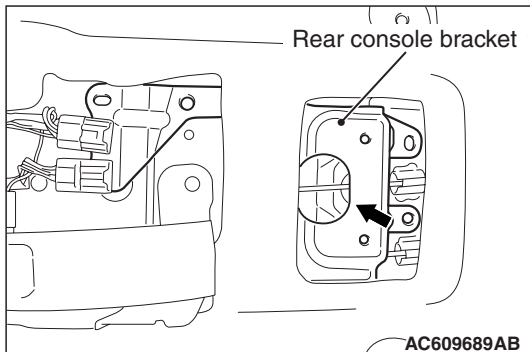
Removal steps (Continued)

3. Parking brake rear cable connection
4. Parking brake lever assembly
5. Parking brake switch

REMOVAL SERVICE POINT

<<A>> PARKING BRAKE REAR CABLE CONNECTION REMOVAL

By sliding the rear console bracket, disconnect the parking brake rear cable from the hole indicated by the arrow.



PARKING BRAKE CABLE

REMOVAL AND INSTALLATION

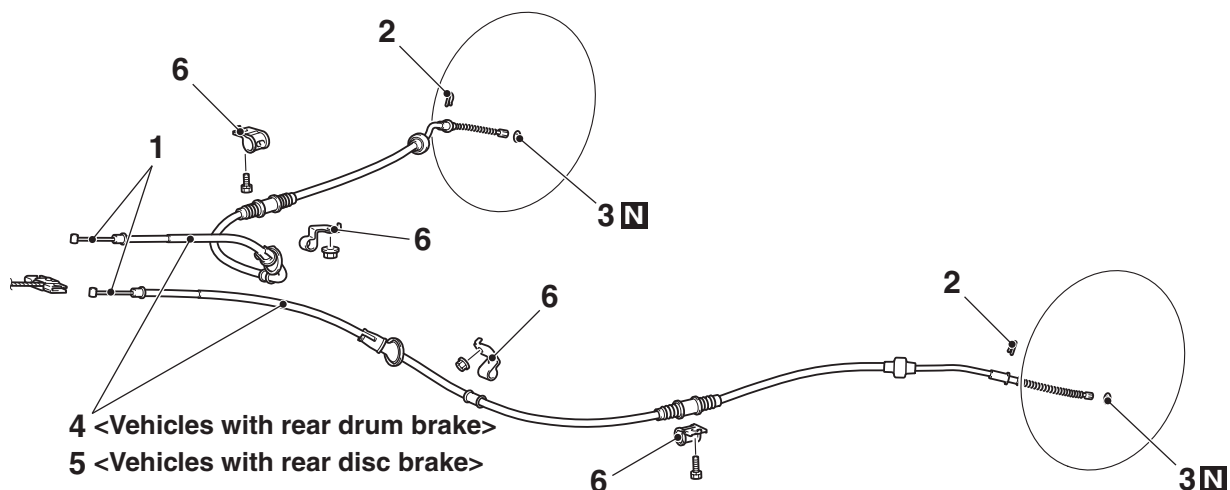
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Pre-removal operation

- Floor Console Assembly Removal (Refer to GROUP 52A –Floor Console Assembly [P.52A-8](#)).
- Rear Seat Cushion Assembly Removal (Refer to GROUP 52A –Rear Seat Assembly [P.52A-23](#)).
- Shoe and Lining Assembly Removal (Refer to GROUP 35A –Rear Drum Brake [P.35A-54](#)). <Vehicles with rear drum brake>
- Shoe and Lining Assembly Removal (Refer to [P.36-15](#)). <Vehicles with rear disc brake>
- Front Floor Panel Rear Removal (Refer to GROUP 51 – Under Cover [P.51-16](#)).

Post-installation operation

- Front Floor Panel Rear Installation (Refer to GROUP 51 – Under Cover [P.51-16](#)).
- Shoe and Lining Assembly Installation (Refer to GROUP 35A –Rear Drum Brake [P.35A-54](#)). <Vehicles with rear drum brake>
- Shoe and Lining Assembly Installation (Refer to [P.36-15](#)). <Vehicles with rear disc brake>
- Rear Seat Cushion Assembly Installation (Refer to GROUP 52A –Rear Seat Assembly [P.52A-23](#)).
- Floor Console Assembly Installation (Refer to GROUP 52A –Floor Console Assembly [P.52A-8](#)).
- Parking Brake Lever Stroke Adjustment (Refer to [P.36-10](#)).



AC609687AB

Removal steps

- Release the parking brake lever.
- Loosen the adjusting nut.

<<A>>

Removal steps (Continued)

1. Parking brake rear cable connection
2. Clip <Vehicles with rear disc brake>

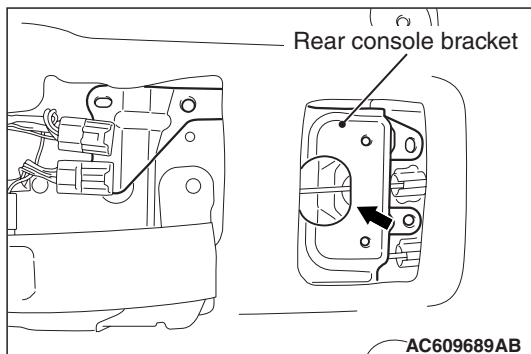
Removal steps (Continued)

<>

3. O-ring <Vehicles with rear disc brake>
4. Parking brake rear cable <Vehicles with rear drum brake>
5. Parking brake rear cable <Vehicles with rear disc brake>
6. Clip

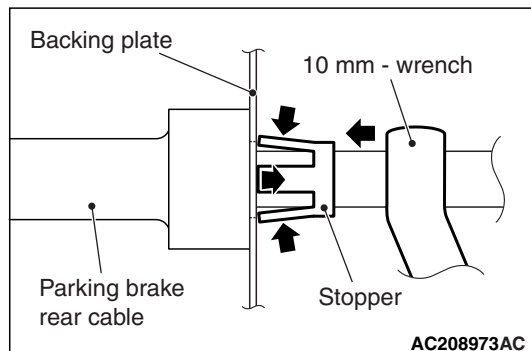
REMOVAL SERVICE POINTS**<<A>> PARKING BRAKE REAR CABLE CONNECTION REMOVAL**

By sliding the rear console bracket, disconnect the parking brake rear cable from the hole indicated by the arrow.

**<> PARKING BRAKE REAR CABLE REMOVAL**

Withdraw the parking brake cable from the backing plate.

NOTE: Insert a 10 mm-wrench into the parking brake cable to facilitate the cable withdrawal.



REMOVAL AND INSTALLATION

Parking Brake Lever Stroke Adjustment (Refer to [P.36-10](#)).



12. Shoe hold down cup
13. Shoe hold down spring
14. Shoe and lining assembly
15. Pin
16. Parking brake rear cable
17. O-ring
18. Shoe and lever assembly
19. Retainer
20. Wave washer
21. Parking lever
22. Shoe and lining assembly

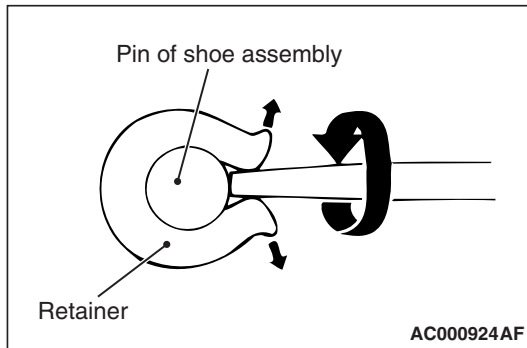
REMOVAL SERVICE POINTS

<<A>> REAR BRAKE CALIPER ASSEMBLY REMOVAL

Remove the rear brake caliper assembly and hold it with a wire.

<> RETAINER REMOVAL

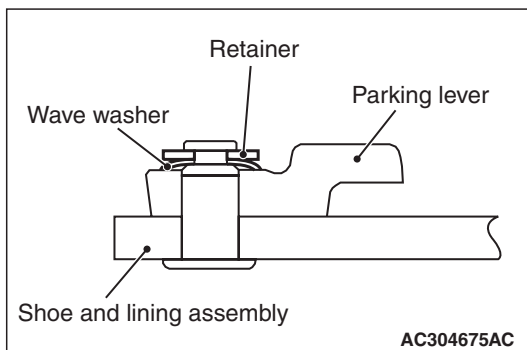
Use a flat-tipped screwdriver or a similar tool to open up the retainer joint. Then remove the retainer.



INSTALLATION SERVICE POINTS

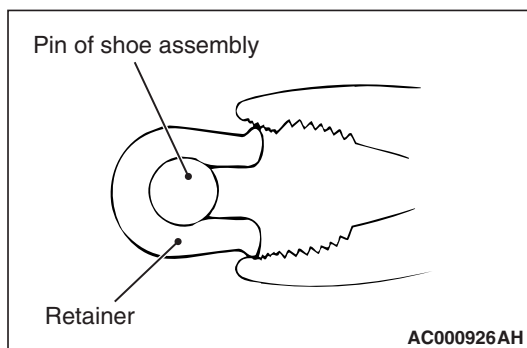
>>A<< WAVE WASHER INSTALLATION

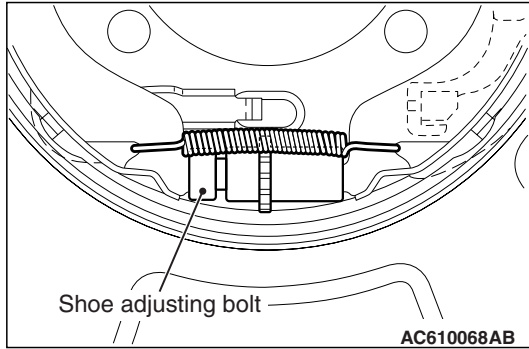
Install the wave washer in the direction shown in the illustration.



>>B<< RETAINER INSTALLATION

Use pliers or a similar tool to close the retainer end onto the pin.

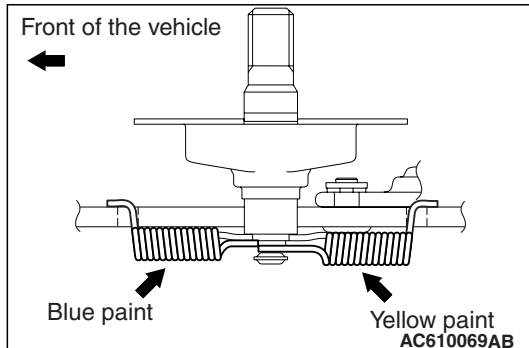




>>C<< ADJUSTER ASSEMBLY INSTALLATION

Install the adjuster assemblies. The shoe adjusting bolt should be mounted to the rear of the vehicle for the right wheel, and to the front of the vehicle for the left wheel.

>>D<< SHOE-TO-ANCHOR SPRING INSTALLATION



The shoe-to-anchor springs are not interchangeable because their spring loads are different. The one with blue paint mark should be installed to the front of the vehicle, and the other with yellow paint to the rear of the vehicle, respectively.

NOTE: The figure describes the left rear wheel. The right rear wheel is symmetrical to that.

INSPECTION

M1361002600475

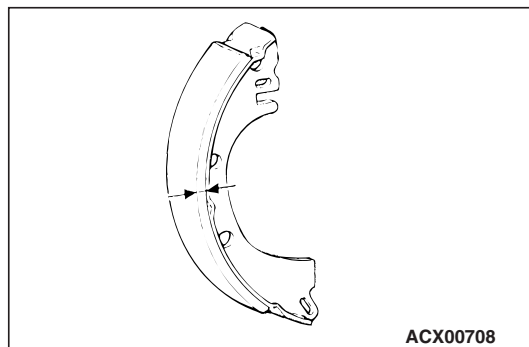
BRAKE LINING THICKNESS CHECK

1. Measure the lining thickness at the most worn area.

Standard value: 2.8 mm (0.11 inch)

Limit: 1.0 mm (0.04 inch)

2. If the thickness is less than the limit value, replace the right and left shoe and lining assemblies as a set.



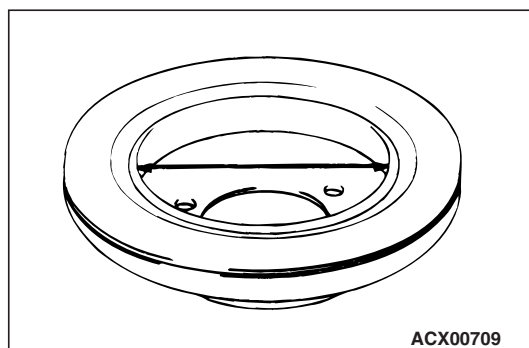
BRAKE DRUM INSIDE DIAMETER CHECK

1. Measure the inside diameter of the brake drum at two positions or more.

Standard value: 168.0 mm

Limit: 169.0 mm

2. If the inside diameter is more than limit value or if there is excessive wear, replace the brake disc.



NOTES